

Burn Assessment and Management

These guidelines are given to assist emergency personnel in the initial management of a burn patient prior to transfer to the Burn Center.

Accredited by the American Burn Association and the American College of Surgeons

Conduct Initial Assessment

Primary Survey: Use ABCDEF to check the patient's status:

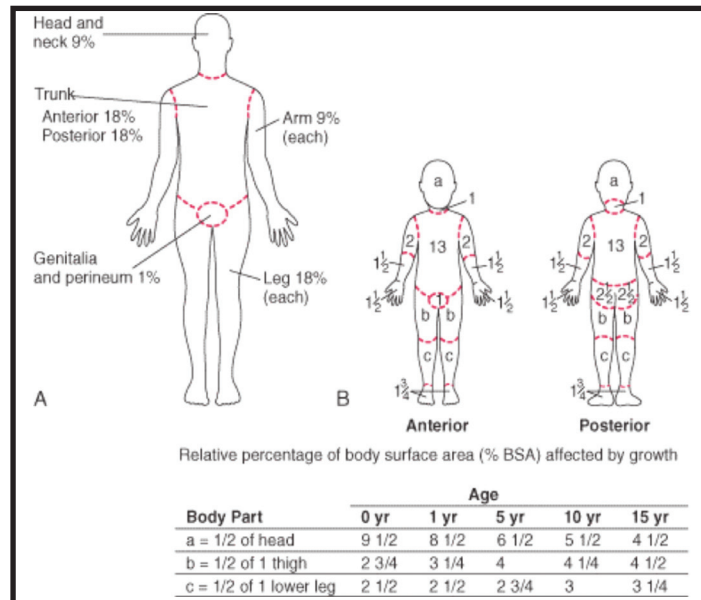
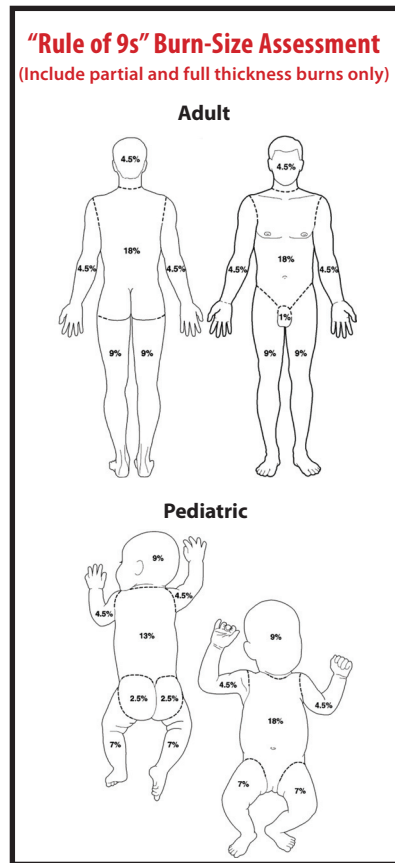
- A Airway/C spine immobilization
- B Breathing and ventilation
- C Circulation
- D Disability, neurologic deficit
- E Expose (remove all clothing and jewelry)
Environmental control (keep warm)
- F Fluid

Secondary Survey: Use head-to-toe approach

- Remove all clothing and jewelry
- Quickly assess percentage of skin involved and depth of burn
- Cover patient with **clean, dry sheet**
- **Keep warm:** Hypothermia occurs rapidly
- Avoid use of ice or ointments
- If material is stuck to the skin, do no attempt to remove
- For circumferential burns, elevate burn extremity above the level of the heart
- May consider Saran Wrap to reduce heat loss

Calculate the Percent of Total Burn Surface Area (Exclude Erythema)

- Use the "Rule of Nines" to estimate burn size for **adult** and **pediatric** patients.
- Use Lund & Browder chart to estimate **pediatric** percentages by age.
- Include **only** partial (second degree) and full thickness (third degree) burns.



To Estimate Scattered Burns: The size of the patient's hand (palm with fingers closed) represents 1% of his or her total burn surface area.

Begin Fluid Resuscitation

If burn size is **greater than 10% pediatric** or **greater than 15% adult**, initiate fluid resuscitation.

Start 2 large-bore IVs (may be inserted through burned skin if necessary). Note: If IVs are started through burn tissue, a tape alternative may be required to ensure securement.

Adults: Start LR at 500mls/hr.

Do not exceed 500mls IVF without discussing ongoing resuscitation needs with a burn attending

Caution: Start IVF at 250 ml/hr for patients who have pre-existing cardiac or pulmonary disease or those more than 70 years old.

Pediatric: Start LR at 20 ml/kg/hr up to 500ml/hr.

Avoid: Fluid challenge unless patient is hypotensive due to trauma

Burn Injury Depth Classifications

First Degree Burn/Superficial

- These burns are not included in the percentage of total body surface
- Only epidermis is involved
- Skin is pink, red and dry with no blistering
- Heals in 3-5 days, usually does not scar
- Minimal risk of infection



Second Degree Burn/Partial Thickness

- Epidermis and dermis involved
- Skin is bright red, pearl-pink, painful and moist.
- May have small to large blisters
- Rapid fluid loss may occur with large burns
- Heals in 10 days -2 weeks
- Pain control indicated
- **Fluid resuscitation may be indicated**
- **Capillary refill present**



Third Degree Burn/Full Thickness

- Epidermis and dermis destroyed
- Fascia and muscle may be involved
- Appears tan, leathery, charred or white and may be depressed below surrounding tissue
- Painful at edge of burn, otherwise insensate
- Pain control indicated
- **Fluid resuscitation may be indicated**
- **Capillary refill absent**



Special Types of Burn Management

Chemical Burns

- Remove contaminated clothing
- Brush off powder and solid chemicals from clothing
- Irrigate involved skin with water or saline for at least 20 minutes or until the burning sensation is relieved
- Caution:** Do not delay transporting patient; may need to continue irrigation en route.

Electrical Burns

The danger from an electrical shock depends on voltage, current, pathway and co-morbidities.

- **Initiate fluid resuscitation regardless of burn size.**
- Assess for associated injuries:
 - Cardiac arrest
 - Dysrhythmias – treat per ACLS protocol
 - Respiratory failure
 - Muscle pain and contractions
 - Seizures
 - Numbness and tingling
 - Unconsciousness
- Special Circumstances: High-voltage electrical injuries require trauma immobilization and evaluation.

Flame/Scald/Contact Burns

- Remove all clothing and items such as jewelry
- Cover the burned area loosely with a dry dressing or clean sheets/blankets
- Do not apply ice or ointments
- May need to initiate fluid resuscitation

Smoke Inhalation

- Administer 100% oxygen.
- Monitor patency of airway closely

Contact the Burn Center for definitive management.

When to Refer a Patient to the Burn Center

The American Burn Association identifies the following burn injuries and conditions as criteria for referral to a certified Burn Center.

1. Second degree (partial thickness) burns that are greater than 10% of the total body surface area.
2. Burns that involve the face, hands, feet, genitalia, perineum or major joints.
3. Third degree (full thickness) burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.
7. Burn injury in patients with pre-existing medical disorders that could complicate management, prolong recovery or affect mortality.
8. Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greater risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center. Physician judgment is necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
9. Burned children in hospitals that don't have qualified personnel or appropriate equipment for the care of children.
10. Patients with burn injury who will require special social, emotional, or rehabilitative intervention.

Excerpted from *Guidelines for the Operation of Burn Centers* (pp. 79-86), Resources for Optimal Care of the Injured Patient 2006, Committee on Trauma, American College of Surgeons.

About the Burnett Burn Center

The Gene and Barbara Burnett Burn Center is the only adult burn center in the greater Kansas City area that is accredited by the American Burn Association and the American College of Surgeons.

The multidisciplinary burn team provides long-term continuity of care for adult and pediatric patients whose injuries require specialized treatment and rehabilitation.

We treat all types of burns and wounds including:

- Chemical, electrical, flame and scald burns
- Large areas of skin loss from accidents or disease processes (e.g., toxic epidermal necrolysis, severe dermatitis or necrotizing fasciitis), which can result in extensive chronic wounds that are difficult to heal.

The Burnett Burn Center offers state-of-the-art equipment, an on-site operating room, hydrotherapy, and complete rehab and support services for adults and children. Services include:

- Plastic surgery and reconstruction
- Occupational and physical therapy/hand rehabilitation
- School re-entry program
- Family and burn survivor support
- Outpatient Burn and Wound Care Clinic
- Burn prevention and awareness resources

Call our Transfer Center toll free at 877-738-7286

for urgent or same-day admissions, or questions about acute burn injuries and urgent or emergent problems related to burns or wounds

For information regarding small burn management or to make a referral, call the Outpatient Burn and Wound Clinic at 913-588-5475.